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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,474	02/04/2004	Thomas Qiuxiong Hu	10326-97US KPM/kf	1921
20988	7590	12/06/2005	EXAMINER	
OGILVY RENAULT LLP 1981 MCGILL COLLEGE AVENUE SUITE 1600 MONTREAL, QC H3A2Y3 CANADA			KINNEY, ANNA L	
			ART UNIT	PAPER NUMBER
			1731	
DATE MAILED: 12/06/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/770,474

Applicant(s)

HU ET AL.

Examiner

Anna Kinney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 2-5, 12, 13 and 26-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 6-11, 14-25, and 34 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/13/05 &amp; 6/16/05</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election of Group 1, containing claims 1-25 and 34, and drawn to a method; species where  $t=0$ ; species where Y1 and Y2 are both present; species where the substituent is hydroxyl; and species where X is sulfate, in the reply filed on November 24, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 26-33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 24, 2005.

Claims 2-5, 12, and 13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 24, 2005.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The requirement is still deemed proper and is therefore made FINAL.

***Specification***

The disclosure is objected to because of the following informalities: On page 7, lines 2 and 10, periods have been inserted at points which appear to interrupt a sentence. The Examiner suggests that the applicant review the specification for further typographical errors.

Appropriate correction is required.

***Claim Objections***

Claim 6 is objected to because of the following informalities: The claim contains a period in line 7 of the claim. Claims must be a single sentence. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 6-11, 14-25, and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 6, 7, and 9 recite the limitation "Y1 and Y2 are present". The applicant elected the species in which  $t=0$ . When  $t=0$ , Y2 cannot be present. Therefore, the Examiner is unable to truly determine the metes and bounds of patent protection desired.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6-9, 14, 21, and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Salzburger et al (U.S. Patent 5,607,544).

With respect to claim 1, Salzburger discloses a method of bleaching and brightness stabilization of a lignocellulosic material (col. 1, lines 8-11) comprising treating the lignocellulosic material with tetrakis(hydroxymethyl)phosphonium sulphate (THPS; col. 4, lines 32-34) a water-soluble phosphonium compound of formula (A) wherein t is zero; Y1 is present; X is sulfate, and the value of m is  $\leq 5$ ; the total charge of  $yn = zm$ ; Y1 is a hydroxymethyl group ( $\text{CH}_2\text{OH}$ ); R1, R2, and R3 are a Lewis acid, substituted linear alkyl groups, the substitution being the presence of hydroxy substituents. The Examiner notes that Y2 cannot be present when  $t=0$ .

With respect to claims 6 and 7, Y1 is a hydroxymethyl group, and R1, R2, and R3 are independently an alkyl group  $(\text{CH}_2)_q\text{H}$  ( $q=1$  for claim 6, and  $q=0$  for claim 7) substituted by one hydroxyl group.

With respect to claim 8, X is sulfate.

With respect to claim 9, Y1 is a hydroxymethyl group and R3 is a hydroxymethyl group.

With respect to claim 14, the compound is the phosphonium compound

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tetrakis(hydroxymethyl)phosphonium sulfate (THPS),  $[P(CH_2OH)_4]_2SO_4$ .

With respect to claim 21, the treatment is conducted in an aqueous medium at a pH of  $9.5 \pm 0.2$ , which contains one specific point within the claimed range of 2.0-12.0, a temperature of 60°C, which contains one specific point within the claimed range of 20-170°C, and a consistency of 5% (50 g paper in 1 L water), which contains one specific point within the claimed range of 0.01-99%, for 10 minutes, which contains one specific point within the claimed range of 5 minutes to 30 days, with a charge of the phosphorus compound being 0.2%, which contains one specific point within the claimed range of 0.01 to 6.0%, by weight, based on the oven-dry (OD) weight of the lignocellulosic material (col. 5, lines 11-29).

With respect to claim 23, the treatment is carried out in a pulper (col. 5, lines 21-23).

With respect to claim 24, the material is also treated with a metal chelating agent such as diethylenetriaminopentaacetic acid (DTPA; col. 2, lines 11-17).

With respect to claim 25, said treating comprises contacting said material with said water-soluble compound in an aqueous vehicle (col. 5, lines 11-29).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10, 11, 15, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salzburger et al as applied in the 35 USC 102(b) rejection to claim 1 above, and further in view of Bowdery (WO 01/53602 A1).

With respect to claim 22, Salzburger does not disclose expressly that the consistency is 40-99%. However, at the time of the invention, and with the lack of evidence to the contrary, it would have been obvious to a person of ordinary skill in the art to optimize the consistency considering the equipment available to achieve the desired results. The wide range indicates a lack of criticality of this variable.

Salzburger et al does not disclose expressly that the compound is THP or a THP salt other than THPS.

Bowdery discloses that the compound is THP or a THP salt (p. 1, line 27 to p. 2, line 3).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use THP or other THP salts as described by Bowdery in the bleaching process of Salzburger et al to obtain the invention as specified in claims 10, 11, 15, and 22.

The motivation would have been that THP and THP salts are more effective than glutaraldehyde at killing catalase-producing bacteria (p. 1, lines 18-21) to prevent or reduce the breakdown of peroxide by catalase (p. 1, lines 1-3).

Claims 16-20 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salzburger et al as applied to claim 1 above, and further in view of Liebergott et al (US Patent 4,804,440).

Salzburger et al does not disclose expressly that the lignocellulosic material is mechanical pulp, what wood source was used, that multiple bleaching chemicals were used, or that dithionite was used.

Liebergott discloses that the lignocellulosic material is mechanical wood pulp chemical wood pulp (col. 2, lines 1-6) and also discloses spruce expressly (col. 8, lines 22-25 and col. 5, lines 23-28). Liebergott also discloses a three-stage bleaching process, including both alkaline hydrogen peroxide and sodium dithionite (col. 1, lines 63-68).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the stabilized bleaching stage of Salzburger et al in the last stage of the bleaching process as described by Liebergott et al to obtain the invention as specified in claims 16-20 and 34.

The motivation would have been that a multistage bleaching process gives high brightness levels to high-yield and ultra high-yield pulps, and that a two stage bleaching process using peroxide and dithionite is well known and applied commercially, but much lower brightness levels are achieved when this two-stage sequence is reversed (col. 1, lines 59-62 and 38-47).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 3,236,676 was cited in the PCT Search Report. The patent shows the application of THP salts to cellulosic materials. However, the



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Examiner's opinion is that '676 does not provide as strong a rejection as the art cited above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Kinney whose telephone number is (571) 272-8388. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALK

A handwritten signature in black ink, appearing to read 'SEAN VINCENT', with a stylized, cursive-like flourish at the end.

SEAN VINCENT  
PRIMARY EXAMINER